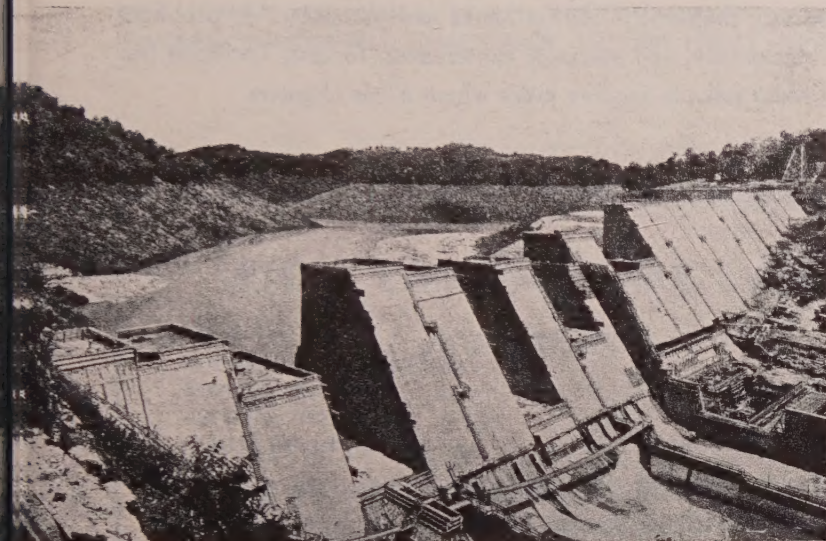


NEW FRONTIERS

• PERIODICAL STUDIES IN ECONOMICS AND POLITICS •



BY
**STUART
CHASE**

RICH LAND POOR LAND

A Summary of
Mr. Chase's
Book
"Rich Land,
Poor Land"



THE LEAGUE FOR INDUSTRIAL DEMOCRACY is a membership society engaged in education toward a social order based on production for use and not for profit. To this end the League conducts research, lecture and information services, suggests practical plans for increasing social control, organizes city chapters, publishes books and pamphlets on problems of industrial democracy, and sponsors conferences, forums, luncheon discussions and radio talks in leading cities where it has chapters.

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RICH LAND, POOR LAND

By STUART CHASE

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A SUMMARY PREPARED BY MARIAN TYLER
FROM MR. CHASE'S BOOK "RICH LAND, POOR LAND"

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FOREWORD

The League for Industrial Democracy is happy to present in this series an admirable summary by Marian Tyler of Stuart Chase's brilliant and thought-provoking book, "Rich Land, Poor Land," recently published by Whittlesey House. The L.I.D. is deeply indebted to the author and the publisher for their permission to publish a summary of this vital social contribution, and to Miss Tyler, the author's wife, for her excellent summary of this volume. It is hoped that the devastating picture here presented of the tragic waste of America's natural resources will reach a public heretofore unmindful of the seriousness of this wastage; will lead large numbers, who have not already done so, to consult Stuart Chase's "Rich Land, Poor Land" for details which cannot possibly be presented in so compact a statement and will give a needed impetus before it is too late to the movement for the conservation of America's priceless heritage.

HARRY W. LAIDLER

RICH LAND, POOR LAND

By STUART CHASE

A SUMMARY PREPARED BY MARIAN TYLER FROM
MR. CHASE'S BOOK, "RICH LAND, POOR LAND"

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THE story goes that an old Nebraska farmer was sitting on his porch during a dust storm. Asked what he was watching so intently, he replied: "I'm counting the Kansas farms as they go by."

The people of America have been sitting on their porches watching their continent go by. Kansas farms are good farms, and the North American continent is a good continent. Its beauty, its prodigality in natural resources, its great North and South wedge laid broadside on the temperate zone, make it perhaps the best continent on earth. It is not a little tragic that we should sit on our porches while this great, good continent goes out from under us. It is our homeland. It is where our children must stay. When it is gone—in the sense of a hospitable environment—where shall we live? Many Kansas farms have gone; the whole Dust Bowl is going. Other areas, as we shall see, involving millions of people, have lost their resource base of land, water or mineral deposit. We have been called the richest nation ever known, and probably we are—now. But how rich is the most lavish of prodigal sons when the last of his father's bonds has been sold and the proceeds spent?

Many travelers set out to report the temper of the land and the outlook for its perpetuation. People come and go, migrate, change their courses, disappear. The continent goes on.

Let us observe the United States of North America at three points in time. Let us see how it looked in 1637, how it looks today in 1937, and how it is likely to look a hundred years hence.

The Original Continent

OF THE two billion acres of our country, it is estimated that, before the white man came, almost half, or just short of a billion acres, was in forest, thirty-eight per cent in strong grasses, eleven per cent in the shrubs and vegetation of arid plains, and only two and a half per cent in outright desert.

From the Atlantic to well beyond the Mississippi, and covering all the South, stretched in those days an almost unbroken primeval forest. A squirrel might leap from bough to bough for a distance of a thousand miles and see scarcely a flicker of sunlight on the ground. The three great Western mountain ranges were covered with forests to the timber line, and both California and the Pacific Northwest had their stands of lordly conifers.

These original forests included a variety of useful timber unequalled anywhere on earth. More varieties were to be found in the tropics and larger contiguous areas of woodland existed in Russia, but nowhere could be found so vast an area covered with such variety of species.

Beyond the Mississippi, forest cover gave way to grass cover, with less rainfall but perhaps even richer soil. The waving grasses of the prairie covered one-sixth of all America, tall, luxuriant and deep rooted. In the spring the whole area was a sea of flowers.

Going farther west to the mid-continent, the twenty-inch rainfall line, the grasses begin to shorten—waist high, knee high, ankle high. The short grass of the Great Plains covered an empire almost as broad as that of the tall grass of the prairies. Scientists now search the region for surviving bunches of species which once covered hundreds of square miles.

No one analyzed the soil of America in 1637. Very little of it could be seen under its magnificent green cover. But most of the continent had a thick layer of soil enriched by the humus of many generations of plants. Soil is like a bank account, and under natural conditions failure of the bank is unknown. Plants and animals die and return to the earth what they have taken, plus a margin to spare. Deposits exceed withdrawals at the rate of about one inch of soil for every 500 years of time.

In 1637 the bank account was growing. Rivers, except the Mississippi and the Colorado in spring freshet, ran clear and sparkling to the oceans. Average rainfall was probably not very different from what we know today, but nature by every possible device kept the water on or in the land. The litter on the forest floor, grasses, herbs, shrubs, rotting logs, even rocks and pebbles, all retarded the runoff of the rains and snows. Low-lying flat lands became swamps and marshes. The industrious beaver, first of conservation planners, was patiently making more swamps. Pockets and depressions, many of them scooped out by the glaciers of the ice ages, became ponds and lakes. The rain which soaked into the humus filtered in due course to vast underground artesian basins.

These underground waters, together with the surface lakes, ponds, and marshes and the spongy, absorptive humified soil, formed great natural reservoirs which held the cloudbursts, the freshets and the melting snows of spring, stored the surplus waters snugly underground or on the surface, reduced the flood crests and released the surplus slowly over the dry seasons. Although floods were known before the white man, not only was their violence restrained in the headwaters by natural reservoirs but in their lower courses they normally overflowed into wide plains which again broke their destructive force.

There were few men on the primeval continent, but the land was covered with trails. In Kentucky, where the buffalo came over the mountains to the salt licks and meadows, their paths were broad enough to drive three wagons abreast, as settlers later found. From the Blue Ridge to the Rockies a network of throughfares followed well-watered glades, natural meadows, beaver meadows, intervalles, crossing the mountains along the heights of land where trees were thinnest.

In the forest from coast to coast lived deer, elk, moose and bear. Antelope grazed the plains with the buffalo, whose range was wider. Buffalo ran from the Great Smokies to the Rockies, north to Great Slave Lake and down to Central Mexico. The beaver built his dams from Atlantic to Pacific, an engineer of little waters.

On the high peaks were mountain goat and mountain sheep, clinging with airy grace to the edges of eternity. The marshes held wild turkey, grouse, wild swan, duck, shorebill, rail and crane. Wild geese

drove their wedges from North to South over the ancient well-marked flyways. Flights of passenger pigeons obliterated the sun. Salmon leaped by the million up the Columbia, shad up the Penobscot, the Connecticut and the Delaware. Trout lay in every mountain pool. Shellfish were plentiful in all the coastal waters, depending on a delicate equilibrium between the salt of the ocean and the fresh water of the emerging rivers.

The Indian population north of Mexico did not much exceed a million. Most Indians were not nomadic savages but primitive agrarians, living in settled villages, tilling the soil and hunting when the hunting was good. They had a keen sense of dependence on the natural environment and an aversion to needless waste. They had no sense of private property in land; the group and its subsistence formed their base line.

The beasts and birds of North America upheld the continental equilibrium because they were an unconscious part of it. The Indian stood aside. He was a man with brain and tools, but without machines to lend him arrogance. A sure instinct told him that it was safer to work with natural forces than against them. When the conservation program was launched by the government in 1933, the most willing hands to be found the nation over were on the Indian reservations.

Beneath the forests and the grasses, mostly unknown and unwanted by the people of the primeval continent, lay deposits of coal, iron, petroleum, natural gas, copper, zinc, lead, gold, silver, phosphates and many other minerals. They were changing, some of them growing in volume, but the growth and change were so slow as to be immeasurable save in geologic time.

The North American continent before the coming of the white man was rich with growing things, incredibly beautiful to look upon, wild and tempestuous in its storms and climatic changes, and perhaps the most bountifully endowed by nature of all the world's continents. Forests, grasses and wild life were at the maximum limit of their vitality; deserts and barren places were at a minimum.

The attainment of maximum vitality is a long, slow process. Each region finds its ultimate balance, which scientists call *climax*. The forest goes to its limit, both in geographical area and in superior

types of trees. It may invade the prairie in its exuberance. Grass-lands go to their limit, spreading out into the desert, developing a climax crop with long roots to tap the underlying water table. Desert and barren areas shrink to an absolute minimum. "A continent undisturbed by man is one of the most abundant life possible."

Today

IT is time to leave this lovely picture and see how the continent looks today, after three hundred years of occupation.

The basic map has changed but little: a slit across the Isthmus of Panama, a few minor shifts in the coast line, small islands thrown up here and there or washed away, some river channels recut. But coming closer we find the cover enormously changed, as well as the denizens thereof. The old forest, the old grasslands have almost completely disappeared. Desert lands have broadened. A dust desert is forming east of the Rockies where firm grass once stood. Woodlands—and a spindly lot they are by comparison—cover only half the area the primeval forest once covered. Grazing areas are still immense but the old types of native grasses have largely gone.

Over one-quarter of continental United States are new fields, bare in the winter, green with crops in the summer. Adjacent to these tilled fields are pasture lands, unknown before, of an almost equal area. On some of the old arid grasslands irrigation ditches now run, and between them is the green of crops. Scattered about the continent, especially along the rivers and sea coasts, are the black clusters of cities and the smaller dots of towns and villages. Linking them run a million miles and more of highways, railroads, the tracery of power lines, and pipe lines underground.

Besides the material and financial loss represented, a landscape lovely to the eye has been sacrificed. The most hideous spots are the environs of mines and the slums and industrial areas of great cities. Gashed earth, culm banks, dead trees and streams putrid with chemicals, refuse and coal dust distinguish the mines. Cities seem to pride themselves on turning their river banks or waterfronts into majestic privies. In place of green foliage and clear water, man has brought

to the continent of America stinking rivers, charred forests, the incomparable filth of cities, the wretched shacks of tenant farmers along Tobacco Road.

Forest

NOT more than one-tenth of the old virgin forest remains. The Douglas firs of the Pacific Northwest are the last great stand of primeval timber. We see them coming down by high-power logging machinery, and when they have fallen, much of the area is so devastated that trees will not grow again. The soil itself is often burned in the ensuing fires. When new vegetation starts, if at all, it is a different and poorer tree crop. These cut-over, burned-over lands are still called "forest" on the map, but we see that almost 100 million acres is really dead land—totally unknown in the old America. Lumbermen are cutting trees of saw-timber size almost five times as fast as the stands are growing. In 1637 the reserves were 7000 billion board feet; today the total has shrunk to 1,600 billion. In a generation or less, at this rate of exploitation, there will be no more reserves. Wheat crops ripen every year, sometimes oftener; lumber crops ripen every century on the average.

The average loss from fire is about \$75,000,000. The timber thus destroyed each year—about two billion feet—would build a five-room house every 100 feet on both sides of the road from New York to Chicago. The effect might be worse than the conflagration, but the loss is real enough. Fire affects the future of the forest by killing the young trees. It hastens decay by leaving scars through which insects and disease enter. By stripping the litter and humus, it encourages erosion and flood.

After lumbering has been badly done, heavy winds uproot large trees, which carry smaller ones down with them. The streamlined tops of the primeval forest guarded against such blowdowns. Wastes in the lumber industry include loose practice in the woods and in the mill. It is estimated that more than one-third of the tree disappears in these two stages, and much could profitably be saved. By these losses, as well as by overgrazing, speeding erosion, floods and drouths, it is estimated that 850,000 forested acres are devastated every year.

Six percent of private woodlands—24,000,000 acres—is devoted to

permanent-yield forestry; the other 94 per cent—376 million acres—is still operated on the cut-out-and-get-out theory, except in the case of farm woodlots. Meanwhile the government is practising forestry on 140 million acres of its own land and also controlling fires on a large fraction of all private lands. Theory and practice confirm the conclusion that, with a century-old crop like timber, *the only owner who can be counted on to devise and carry out a long-time program of management is the government.* Of 615 million acres in the country altogether, 308 million have a major influence on watershed protection and another 150 million have an important influence. Lumber, we must remember, is only one part of the forest story.

Grass

SOME virgin timber still remains, but it takes patient search to find virgin grasslands. The primeval sod has been burned, overgrazed, plowed up and destroyed. Where dry farming for wheat has been practised on the Great Plains, the Dust Bowl spreads. Where corn has been planted on slopes in the tall grass regions, water erosion spreads. The sharp hooves of too many cattle and the close cropping of the grass by too many sheep have torn the cover from the open grazing lands, loosened the ancient sod, and started the gullies and dunes of both water and wind erosion. One hundred and sixty-five million acres of grazing land has been seriously depleted. As in the case of forests, when new vegetation does gain a foothold, the species are inferior to the old climax crop.

When grass goes erosion begins. The great dust storms of recent years are not a chance phenomenon but the culmination of a long process. After a storm, the fine silt scattered over the fields is impenetrable to water. Even heavy rains promptly run off. That is why rain in the Dust Bowl, which looks like a godsend, often means so little. Sometimes a single storm will remove several inches of soil, first the loam and fine sand, then the coarse sand. Finally the wind may take all soil down to hardpan and so create true desert conditions. Sand dunes begin to roll as on a beach. Good land beyond is covered by the marching dunes. What the wind leaves the water takes.

There are many methods to check and control the march of dust. Government scientists are constantly finding more. But in the end there is only one real control: bring back the grass. The margin of control is not large—only the length of the roots, which alone can hold the outposts of our productive lands. In critical areas this means a margin of twelve to eighteen inches. As in the case of water erosion, control is beginning, but dust clouds roll even faster than floods. Dust is no respecter of property. The fight against it must be collective, not individual.

Soil

THE skin of America has been laid open. Two powerful agents are destroying the soil: erosion and the loss of fertility due to mining the soil for crops. Soils which have been building steadily since the last ice age now in a single century lose the benefits of several thousand years of accumulation. Corn yields in sections of Iowa have dropped from 50 to 25 bushels per acre within the lifetime of a man not yet old. This, remember, is the richest land in America. In the northern humid states alone, scientists estimate that one-quarter of the original nitrogen, one-fifth of the phosphorus, one-tenth of the potassium and one-third of the sulphur have gone.

The three billion tons of solid material washed out of the fields and pastures of America every year by water erosion contain forty million tons of phosphorus, potassium and nitrogen. This is in addition to losses through cropping. To load and haul away this incomprehensible bulk of rich farm soil would require a train of freight cars 475,000 miles long, enough to girdle the planet nineteen times at the equator. Approximately 400 million tons of solid earth is annually dumped into the Gulf of Mexico by the Mississippi alone—the greater part of it super-soil, richer than that of the Nile valley. Plant food can be restored to soil that has been worn lean by cropping, but when water takes the soil itself—minerals, humus, microscopic organisms, everything—only nature can restore fertility to that land, and her rate under primeval conditions is one inch in 500 years.

One hundred million acres of formerly cultivated land has been es-

entially ruined by water erosion, an area equal to Illinois. Ohio, North Carolina and Maryland combined, the equivalent of 1,250,000 eighty-acre farms. In addition, this washing of sloping fields has stripped the greater part of the productive soil from another 125 million acres now being cultivated. Erosion by wind and water is getting under way on another 100 million acres. More than 300 million acres—one-sixth of the country—is gone, going or beginning to go

Soil losses due to cropping are the result of foolish marketing procedures, revolving around the one-crop system in cotton, corn, tobacco and wheat. Losses due to erosion are the direct result of stripping the forest and grass cover from the slopes. When the tangle of roots gives way to bare plowed fields, especially with cultivated rows running up and down hill, there is nothing to hold the rain. It tears over the contours, taking the soil with it.

For the continent as a whole, it is reliably estimated that half its original fertility has been dissipated by these various agents. The rate of loss tends to follow the laws of compound interest. The stricken areas grow cumulatively larger.

Water

FROM the packed earth of the crop lands, the bare-burned slopes of the devastated forests, the broken sods of the grasslands, rain and melting snow rush to the rivers in a fraction of the time they used to take. In some watersheds, runoff which should require three months is carried down to the sea in a month. The rivers run red with mud where once they were clear. Reservoirs are silted, power dams are rendered increasingly impotent. Lower a bucket into the Canadian River and allow the contents to settle. One-fourth of the water turns out to be rich soil which the upstream owner paid for in cash.

The baked earth of the tilled fields prevents the rain from percolating into the artesian basins as it used to percolate through the cover of forest and grass. We see the underground water table falling, all over the Western half of the continent. The cool dark reservoirs which once did so much to equalize flood and drought are sinking. The same

thing is happening with surface reservoirs. Marshes and swamps have been drained in the hope of reclaiming good agricultural land. Sometimes the land turns out to be bad, unsuited for crops.

In the lower reaches of the rivers, the old natural side reservoirs have been blocked off by levees. Here is rich farm land, to be sure, but the rivers rise as the silt sinks, and the levees must rise higher still. Floods under these conditions must grow worse; droughts must grow worse. The safeguards of nature have been stripped away. In times of low water, the pollution of streams becomes an ominous menace. Each community in the watershed area dumps its untreated sewage into the drinking supply of the town below. When the river is low, sewage poisons remain unoxidized.

Animal Life

IN UNCOUNTED streams, fish lie killed by the wastes of cities and the black refuse of mine and factory. Pollution has destroyed more fish than all the fishermen, and silt has killed more than pollution. Oil wastes strangle the fish fry when they come to the surface. Sewage competes with marine life for a limited oxygen supply. Waxy sludge coats the river bottoms and kills plants there. Our streams, according to Paul Sears, have become watery deserts, inimical to life.

The continent provides a home for man and other creatures. If the creatures were exterminated, the position of man would become untenable. Insects, with such natural enemies as birds eliminated, would make short work of him. Certain creatures have to go when man comes in. Buffalo and cattle cannot jointly crop the Great Plains. Grizzly bears and mountain lions make poor neighbors around ranch and farm. As in the case of forest, grass and water, the problem is to find the facts, consult the ecologists and determine a practicable working arrangement with our fellow tenants. Not only is there room for both of us, but we are the debtors when all is said and done. Wild animals got along nicely without white men for a hundred thousand years in North America, but the palefaces cannot get along without wild animals. We not only need them as the first line of defense against the insect menace, but we need their furs, hides and oils—such as cod-

liver oil—in certain manufactures, we need them for an important form of recreation in hunting and fishing, and we need their life and beauty about us when we leave the city.

Before the coming of white men, the balance of nature kept insects and pests under reasonable control. We have weakened nature's resistance. Recent studies in natural grasslands show that the number of pests does not become significantly large until overgrazing sets in.

Two varieties of hunters may be identified: sportsmen and butchers. Pot hunters, the latter have sometimes been called. If the wild-creature population were turned over exclusively to their mercies, there would not be a living thing left in a decade. With dynamite, net and machine gun they would wipe bare the lands and waters of the continent and insects would complete the destruction. One of this precious crew boasted that in a single year he had killed 139,000 game birds and animals. A single hunter in the last century butchered 7,000 canvas-back ducks in one season. Chesapeake Bay hunters armed with swivel guns killed 1,500 ducks in eight hours for the New York market.

Pot hunters have exterminated the passenger pigeon and the heath hen. Helped by pollution and the damming of rivers, pot hunters are well on their way to exterminating the Atlantic salmon, the sturgeon and the shad. They are rapidly reducing the numbers of bluefin, blackfin and bloater in the Great Lakes. On every coast their assaults on the lobster, oyster, shrimp, scallop and clam steadily reduce the population. The national oyster catch declined more than a third from 1901 to 1926.

Minerals

LOOKING below the cover of the continent we read the same story. The bowels of the earth have been cleft and robbed. Deposits painfully laid down over geological time are coming up through smoking scars in the earth's crust to be burned, pounded, fabricated and rusted and eventually to vanish. Gold and silver mines have stripped away the accumulation of ages, and in placer mining have destroyed the surrounding soil as well. The sulphur fumes of copper refineries blast the vegetation of whole counties, as we shall presently see in detail. Phosphate mines destroy thousands of acres

of surface soil. Coal pillars are pulled underground and farms fall in. Suffocating fires burn in abandoned mines for decades. In a single year enough petroleum and natural gas are exhausted to account for a million years of natural accumulation. In one field in Texas alone, a billion cubic feet of gas is daily blown into the air, "enough," says the National Resources Board, "to supply the United Kingdom twice over. It is forty times as much gas as all the Scandinavian countries use together. It is almost enough to supply every householder in the United States now consuming either natural or manufactured gas."* Petroleum, copper, lead and zinc move toward exhaustion within a generation at the present rate of exploitation.

The critical mineral resources are copper, lead, zinc and petroleum. There is plenty of iron and coal still in the bins of the continent, but much of it is either of low grade or difficult to get at. The rich accessible veins have been deeply mined. Gold is almost gone, but it is unimportant save for decorative and magical purposes. It should be further noted that the heaviest drains have come in the last few decades. By and large, we have lost more minerals since 1900 than in all the preceding years.

Tomorrow

IF THIS devastation continues at the same rate in the future as in the past, another twenty years will give us deserts, ominous and terrible. In fifty years the situation will be very serious indeed. Morris L. Cooke estimates that at the present rate of destruction only 150 million acres of really fertile land will then remain. This is the only acreage sufficiently level to resist erosion.

Suppose present trends were to be projected unaltered into the future. I have had an opportunity to look at that future, not with a magical electric eye but with my own. In a certain area these trends have been speeded up with the aid of chemistry, and the future now stands stark for all to see. The normal processes of erosion are mechanical and take longer in the working out. But the end is substantially the same. The hills of the country I am about to describe are as terrible as the man-killed hills of China, but they have been

*Report of Natural Resources Board, p. 393.

blasted by the sulphuric acid fumes of a copper smelter rather than by the stripping of forest and grass.

Ducktown is in Georgia just over the border of Tennessee. I drove there through the Great Smoky Mountains in the spring of 1936. The scenery was wild and impressive: sheer precipices, deep ravines, tumbling cascades, a gray lake with a large concrete dam and power-houses. We turned a bend and suddenly saw a thing that belongs in no lake—a chocolate-colored tongue of shaking mud half a mile long. Behind it were other tongues and trembling islands. They were deposits of silt, brought down by the water from the lands above. The banks themselves have changed from good honest mud to this forbidding red-brown jelly.

We entered the narrow gorge with the river, a stream not of water but of boiling molasses. The whole stream bed, every rock, every log, every leaf of grass, was coated with silt. The trees about us were dead. Mile upon mile had been blasted by fire. Beyond the fire area were live trees again, some in their first Spring raiment. Another mile and they began to die. It was not fire this time, but something still more unnatural.

We were among the rounded hills. There were bunches of withered grass on them and the occasional white skeleton of a tree. The hills were ribbed with cracks through which the red earth appeared. In some places terracing had been attempted to hold the soil, but the terraces had long since been breached with open gullies. Fences fell crazily into these gulfs. The earth was opening about us; the road seemed the only firm place. Grass remained but it was functionless, its holding power gone. Here was no place for life or for man. The gullies grew wider and deeper—twenty feet, thirty feet down, a hundred feet across. The hills burst open like a dry peach. Then even the dead grass disappeared. The desolation was monstrous and complete, like mountains on the moon.

Over a crest we saw a cloud of black smoke. The road curved around the crest and Ducktown rose before us—a little village and a huge dark smelter perched on a hill. In a great circle about the smelter, measuring perhaps ten miles in diameter, every living thing has been destroyed by the sulphur fumes. Inside the town the horror is momen-

tarily shut out. Main Street as usual—drugstore, cinema, Masonic hall, A & P, filling station, garages, parked motorcars, people talking, shopping, smiling. A sign proclaims WELCOME TO DUCKTOWN.

A raw commercial age merits such a background, where nature throws up her hands and the good earth runs bleeding to the sea. Before it finds the ocean, it chokes the power company's reservoir. This too is as it should be, in the true spirit of individualism. The copper company ruins the reservoir; the power company seeks whom it may devour farther down the stream.

Here is the story of the future—"if present trends continue"—highly simplified and very clear. Metaphorically speaking, the smelter is industry, feeding on a declining resource. While that resource lasts, the people of Ducktown have jobs and automobiles. The world congratulates Ducktown on its high standard of living. Meanwhile the land crumbles away and the waters become wild and useless. This does not matter—for men without eyes—if other lands grow food and if copper keeps coming out of the mines to exchange for it. But no mine can be operated without power, and finally the outraged land and water cut off the power. What happens then? What happens when the copper runs out? What happens when other lands cease to grow crops, by virtue of Ducktowns of their own? What happens when a continent has become one great Ducktown?

Counsel for Defense

A LOVELY vital continent has been outraged and betrayed. But this rape of nature, while heinous, is not a simple crime. Counsel for the defense must have his say. To begin with, 130 million human beings could not possibly exist in America while scrupulously respecting the primeval equilibrium. A million Indians were about the limit. What would men eat; how would they be clothed? Forests had to fall, both for lumber and for tilled fields. Wild beasts had to be decimated, their pastures given over to domestic animals. Waters had to be put to use, irrigation ditches dug, swamps in many areas drained. The earth had to be laid open and minerals mined. On no other terms could a population of this size be supported.

Whether primeval nature is a lordlier expression of life than a

restless, curious animal with a big brain and an opposed thumb is a fair question, but irrelevant. While I love great trees, I am more concerned with human livelihood than with the tallest tree. One is not disposed to quarrel with the exploitation of any part of nature if it contributes to human welfare. But one wants to be sure that the exploitation throws no boomerangs. Welfare, after a fashion, has been served in the past by ravaging nature. The boomerangs are now returning thick and fast. The continent is becoming not only seriously unbalanced in natural terms but rapidly inadequate for man himself.

It may be objected that invention has still a chance to win out. Why bother with soils, for instance, when Dr. W. O. Willcox announces that we could raise our present tonnage of crops on one-fifth the present acreage by an intensive use of the principles of agrobiology? Why worry about oil when motor engines can run on alcohol? Why bother about the forests when houses can be built of steel, aluminum and glass?

These again are fair questions, not to be answered by pointing tearfully to the scarred beauties of nature. If science has beaten the natural environment altogether, let us know it straight and true, weep for our trees and wild fowl if we must, but plan for a forthright scientific world. Every such question, however, must be severely scrutinized on its merits. Let us test the three given, for they are typical.

Whether the American population could feed itself on eighty million acres of land instead of the present four hundred million is debatable in itself. Personally I tend to agree with Dr. Willcox that it is theoretically possible. Assume that it is. How does Dr. Willcox propose to operate these acres? By a tremendous program of supplementary irrigation on top of normal rainfall. Such a program calls for dependable watersheds, full artesian basins, water planning on a huge scale. Water planning calls for forest and grass cover and strict measures against erosion. Thus the instant one tries comprehensively to plan for food crops, the whole land and water complex comes in. Discount four-fifths of our crop land as ultimately needless if-you will, but nature's equilibrium must still be respected to secure dependable results on the remaining fifth.

Without erosion control reservoirs will fill with silt, dams will become useless, power supplies will be shut off, floods will increase in


violence, droughts and low-water periods will multiply, irrigation projects will be ruined, navigation will be disrupted, wild life will be progressively destroyed, recreation facilities will be increasingly limited. It is not a simple matter of growing food. Adequate calories might conceivably be secured by growing plants indoors in cabinets, as competent scientists have suggested. But if we neglect the soil on the score of the food supply alone, we expose ourselves to alarming deficiencies in other economic fields, to say nothing of destroying the surface on which, after all, we must build our houses, carry on our work and contrive to live.

Now for question two, the substitution of alcohol for oil. Let us assume that petroleum does run low, as seems likely within a decade or two, but that engineers produce a motor which operates with reasonable efficiency on alcohol. We can still get from New York to Boston in five hours if we step on it. What does alcohol come from? From grain, potatoes or other plants. What nourishes plants? Soil and water. Furthermore, if all our present corn crop were converted into motor fuel—to quote C. C. Furnas—it would supply only half our present needs for motor fuel. If we are to employ alcohol as a substitute for petroleum, we shall need more agricultural land rather than less.

Question three. It is true that houses can be built of steel, aluminum or glass, all common in the earth's crust. But the most important function of the forest is not to supply lumber, but to protect soil, guard against floods, promote hydro-electric power, or help furnish supplementary irrigation for Dr. Willcox's intensive agricultural operations. Trees may be more useful alive than dead.

No major resource question can be answered by itself, but only in relation to the galaxy, and nine times out of ten land and water appear somewhere in the cycle.

The Resource Base

 ONE continental resource after another has been devastated. The beaver went first. Then the forests, the tobacco soils of Virginia, the tall grass, the short grass, the soils of the cotton belt, the passenger pigeon, the Rio Grande region, gold and silver, the

buffalo and the antelope, the best of the artesian basins, petroleum and natural gas, watershed after watershed, game and waterfowl, the marsh lands, copper, lead and zinc.

Each assault made money for somebody at the time. Many have been accompanied by issues of stock, bonds, mortgages, checks, currency and great activity in Wall Street. The Great Plains beef boom attracted capital from all over the world. America has achieved its relatively high standards by living on its resource capital, by taking more out of the continent than was put back. This was and is inevitable for mineral resources underground, but it is the road to ruin for land and water resources.

We have mentioned various exhausted resource areas. Let us bring them together:

1. *Crop-land areas.* 100 million acres of once-fertile soil are now eroded beyond hope for livelihood and other large acreages are depleted. The cotton belt is badly affected.

2. *Grassland areas.* 165 million acres are on the way to ruin. The carrying capacity of grasslands has declined 40 to 50 percent.

3. *Forest-land areas.* We have 83,000,000 acres of lifeless land and stranded forest communities.

4. *Watershed areas.* The West is dotted with dying irrigation projects, the East and mid-West with unsuccessful drainage projects like the Wisconsin and Minnesota peat marshes. The delta of the Central Valley of California is invaded by salt water. Flood victims try to exist on a score of rivers.

5. *Wild-life areas.* There are many stricken fishing villages and hunting, trapping and fur communities.

6. *Mining areas.* Copper towns, lead towns, zinc towns, oil towns, have lost their livelihood. Miners on the margin suffer more than marginal farmers.

The map is thus stained with blighted areas. The number of Americans involved is probably more than ten million.

Why has this destruction happened? The major reason, in my opinion, is the American concept of infinity. No other nation except Russia and China ever had such a slice of continent to play with. No other nation, including Russia, ever had such wealth in resources.

Looking from the Atlantic to the fabulous Pacific, there seemed no end. What if a forest was levelled here or a field gullied there? Move on, brother; the great open spaces beckon. It is this concept which inspires the chambers of commerce, the boosters, the boomers, Wall Street itself.

If to the concept of infinity be added the usual practices of a reasonably ruthless capitalism, and certain extraordinary property laws exclusively American, we come close to the true answer to the question why ten million citizens are without a resource base.

Planning with Nature

THE question before us is whether we can keep an advanced technology based on mineral exploitation and yet come to terms with nature. It is assumed that we shall continue to need 300 million acres, more or less, of good crop land, large quantities of forest produces, power dams, irrigation projects, drainage, water supply, channels for navigation in inland waters, pasture lands for domestic animals, cities, highways, railroads, pipe lines—all unknown under primeval conditions. The ecology of 1637 is flatly impossible today. Can we find a new ecology which respects nature and still permits technological progress?

I believe that we can. I know that we must, or face the choice between abandoning our machines and abandoning the continent. An equilibrium must be determined and it must be planned. However clever industry may be, the land, in its broadest sense, is the determining factor in the end.

Let us now, in the light of what has gone before, consider the major requirements of resource planning. Every human being is forced to make plans, but these do not concern us here. Our concern is rather with the community. How shall its base of natural resources be maintained? How shall its vitality be preserved? How shall its levels of living be raised? How shall it live more fully, and its children more fully still? Per contra, how shall a threatened menace to its livelihood be averted?

The free-market system, even if it could be trusted automatically to throw off adequate amounts of food, clothing and shelter, does not

allow and never has allowed for the conservation of capital in the form of natural resources. The best conceivable way to waste a pool of petroleum is to parcel out the surface land to competing owners, each feverishly intent upon outdrilling his neighbors. Lumber companies are forced by competitive conditions to look upon a forest as a mine, and only the Forest Service, protecting future generations, can afford to look upon it as a crop. Mining companies must head for the richest veins when prices are dropping, whatever the consequent violation of sound engineering practice.

The Geological Survey gives us an impressive list of the natural resources already held on federal government lands. They include: 30 million acres of coal lands, containing more than 200 billion tons. 500 thousand acres of phosphate lands, containing 8 billion tons. Large deposits of potash. Sixty-five developed oil and gas fields, producing 33 million barrels a year. Four million acres of shale, holding 60 billion barrels of oil. Five million horsepower of developed hydroelectric power. Eighteen million horsepower undeveloped. Almost 200 million acres of public domain, containing much forest and range land. One hundred million acres in which the government has parted with the surface title, but retains the subsurface or mineral title. The only considerable deposit of helium in the world.

By the default of private enterprise, the task of conservation has passed and will continue to pass to the government. Private enterprise has had no plans save a maximum of pecuniary return. Whatever verbal symbols we may cherish in our heads, modern communities in the power age have practised planning in respect to public business, have abandoned the free market and its automatic controls wherever big business is dominant, and have had to accept the task of husbanding natural resources.

Resource planning involves a dictator. Gentlemen in club windows nod savagely. They see parades of bureaucrats waving blueprints and laying down laws of Thou Shalt and Thou Shalt Not. But they are wrong. The dictator is nature. They say that planning subverts the "natural order," by which they mean the free market. This is an exceedingly superficial deduction. Laissez-faire is a man-made institution, impermanent and passing. Nature has been here a long time. Her order, and hers alone, is *natural*.

The balance of nature and modern technology in its use of fuels and metals are locked together, and together they support the American population. If technology goes out, population is cut in half; if the balance of nature goes out, population disappears. The principles of resource planning on the highest level of abstraction are two:

Hold soil, water, forest and grass at par. Over any reasonable period of time never allow net depletion. Keep inflow balanced against outflow.

Hold the rate of mineral exploitation at a minimum, except for abundant resources like stone and sand. Prevent needless waste. Encourage research in the field of substituting abundant minerals for rare ones.

On these two principles, the resources base remains solid to perpetuity in respect to land and water and declines at a minimum rate in respect to minerals. Land and water we might term the active resources, minerals the passive. Trees grow, water runs, the hydrologic cycle revolves on its majestic wheel. Minerals lie dormant in their beds, and grow only in geologic time.

The time elements in replacement should also be kept in mind. Grass, for example, is the resource which can be replaced most quickly, sometimes within a year, but in the Dust Bowl not for many years. Forest can be replaced in from 20 to 200 years. Water replacement comes next. Though artesian basins may sometimes fill in a few years if pumping is stopped, most basins, lakes, rivers and ponds, when they have run low or dry, wait for their replacement on the forest cycle. To replace soils by natural means requires centuries to thousands of years.

Metals once mined can never be replaced, but by remelting scrap metal their useful life can be prolonged. So with fuels like coal, oil, gas, peat. Once used they are gone forever as men measure time. In one sense the most precious resource of all is wild life. An extinct animal like the passenger pigeon can never be replaced by either geology or biology.

In planning for the active resources we have to consider not arbitrary political divisions but natural regions—mountains, streams, watershed areas. A river basin cannot be planned for any one factor

like navigation alone or flood control alone, unless we descend to random tinkering. Look at the failure of the flood controllers in the lower Mississippi. If floods are to be tamed, one must go back to where the water starts, at the raindrop and rill stage. Marsh, swamp, grass, forest, artesian basin, type of crop, all must come in. We might call this *headwater strategy*, playing the game with nature rather than playing against her with levees. The individual farmer is very important; his cooperation is essential. The principles to remember are: first, to hold the water and release it slowly, using every gallon as it comes down, and second, to hold it in the soil and in natural reservoirs wherever possible rather than by costly dams.

"A river," some one has said, "is more than an amenity. It is a treasure." We must treat it as such and not befoul its banks with dumps and shacks and untreated sewage outlets. Each basin must be studied to determine precedence of uses and means of coordination. The Supreme Court has ruled that drinking water for man is the highest use. Abstractly it is; in concrete cases it may not be. In the Colorado basin, engineers would place irrigation, power, flood control and perhaps recreation ahead of potable water. It depends on the river.

Planning from the purely economic point of view is a difficult task. New invention is continually upsetting nice calculations. Public demand is fickle and may turn from products carefully planned for. Industrial migrations, population changes, new forms of transport, confuse the issue. I am a strong proponent of industrial planning provided it is kept flexible, but I realize its difficulties. How different the case may be when one turns to planning for a river basin. Here nature sets the terms. When the concept of land and water as an organic whole is driven home, one finds firm ground under one's feet. This area demands forests, that grass; water must be held on another. Arguments fall to a minimum. Only fools and speculators grow disputatious.

It is possible, by applying technical knowledge, to maintain the active base of land and water. The terms of nature can be met. A region or a continent need no longer go downhill. At the same time, with careful management, the current output in food and technical crops like

cotton, lumber, water power, need be in no danger of restriction. Industry is based on diminishing assets. Some day the metals will be gone. Land and water go on forever, if we care to work with nature. Their values need never decline. They are the only final insurance of the life of our country and its people.

There is no way of coming to terms with nature in the matter of passive deposits unless and until man devises a method of fashioning raw materials from atomic bricks. We can, however, lower the rate of exhaustion to a point where the technology of substitutes offsets the decline. At such a point the community may cease to worry about its minerals.

How different is the approach to the active assets. While the injunction is to use rare metals less (modern war, of course, is the greatest destroyer of metals conceivable), water should be used more. Make it work all the way down; use it over and over again. The Tennessee Valley Authority is putting water to work in the first comprehensive program of planning with nature ever attempted in America.

The National Resources Board recently dispatched an expert to inquire into resource planning in England, Germany, Austria, Switzerland, Italy, Czechoslovakia and France. He reported that all these countries had more or less complete government control of water resources, that all had highly developed forestry departments, that all exercised rigid supervision over pollution, that drainage and irrigation projects were carefully planned, that hydroelectric plants were either owned or effectively controlled by government.

Western Europe plans with nature, so far as national boundaries and divided watersheds permit. But in other parts of Europe, in large areas in Africa, in India, in China and now in Australia, the opposite has been true. Soils have been ravaged at a rate beyond the capacity of nature to repair. Civilization after civilization in the past has been reared on borrowed capital, and the security was the good earth, not bankers' paper. Mesopotamia, Egypt, North Africa, Greece, Rome and Mexico under the Maya worked through their resource assets and passed into limbo.

Saint Paul preached in the city of Antioch, thundering against its pride of wealth and its sins. There were 400,000 people in the city.

Today it is a miserable dusty Syrian town of 30,000. Archeologists reconstruct its ancient grandeur after digging through eighteen feet of detritus. Antioch perished not from its sins but from erosion on the Taurus and Lebanon Rivers. Protective terraces were neglected, forests were cut off, and the silt and gravel streamed down, as they stream from Ducktown today. There is no philosophical difference between the fate of Antioch and the possible fate of any prosperous town on the Ohio River. There is, however, a decided mechanical difference. The simple Syrian plowed four roods in a day, the simple Ohioan plows 117. The machine has enabled us to telescope the old pattern.

The great wheel of nature turns. A continent is *situs*, a place to live, and so far more than a bread factory. People do not make continents; continents make a people. The strength of our nation is due to the continent of North America. It has molded us, nourished us, fed its abundant vitality into our veins. We are its children, lost and homeless without its strong arms about us. Shall we destroy it?

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BOOK REVIEWS

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SWEDEN, *THE MIDDLE WAY*. By Marquis W. Childs. *New Haven, Yale University Press*. 1936. 171 pp.

Up until a few years ago, many Americans who considered future economic orders were in the habit of stating that two alternatives—and two alone—presented themselves before the people of the world: a capitalist order in general outlines similar to that of our present day American capitalism and a Communist order, following the general pattern of Russian collectivism. Various democratic experiments in public ownership, consumers' cooperation and social legislation were taking place in a number of countries in Europe differing in important respects from American capitalism, on the one hand, and Russian Bolshevism, on the other, but these were largely ignored.

During the last few years, however, the attention of this country has been increasingly directed to these experiments, particularly those which are taking place in the Scandinavian countries. One of the most valuable contributions to an understanding of these developments is Marquis W. Childs' "Sweden, the Middle Way."

Mr. Childs, contrary to many critics of his book, does not contend that Sweden has ushered in a Utopia for its people, "or even an approximation to Utopia." It has, however, curbed or abolished the profit motive in certain important fields of effort and has applied in various ways the principle of democracy to industry through the consumers' cooperative movement, through state ownership, the development of the labor movement on the economic and political fields, and various types of labor and social legislation. Out of these experiments in democracy, he contends, have come "a certain wholeness, a certain health, that is rare in the present period, . . . a measure of peace and decent living that will serve, and for a long time to come perhaps, as a standard for larger nations."

The author describes one by one the agencies which have helped to hold the profit motive somewhat in check in this most important of the Scandinavian countries. The first institution analyzed in his suggestive volume is that of the voluntary cooperative movement which today controls one-third of the retail trade and more than 10 per

cent of wholesale trade and manufacture for domestic consumption. The author does full justice to this remarkable movement in Sweden which has successfully tackled some of the most thoroughly entrenched monopolies of the state and has dotted Sweden throughout with many of the most immaculate, attractive and efficient co-operative stores to be found anywhere in the world. Mr. Childs' description of the titanic struggle of the cooperative with the international electrical lamp trust is an inspiring story of cooperative enterprise and perseverance. The great cooperative Luma lamp factory in Stockholm today bears eloquent testimony to the success of this struggle against an international cartel.

The author also carefully considers the very real contribution of cooperative housing to the welfare of the community. He deals extensively with the trend toward public ownership in forestry and the allied lumber industry, in the electrical industry, where the state produces a third of the kilowatt hours generated in Sweden, in rail and air transportation, operated and coordinated by the government, in telephones, telegraphs and the radio, and in such luxury industries as tobacco and liquor. In a number of these and other industries, the state has entered into partnership with private industry in the operation of the enterprise, strictly limiting profits to private owners and supervising in important ways the character of the services rendered. It is of interest to note that the Swedish Parliament passed a law establishing an outright monopoly over the importation of unprocessed tobacco and the manufacture and wholesale distribution of cigars and cigarettes as a means of obtaining additional revenue to start the old age pension system.

Most of the state monopolies have more than paid for themselves, although the prices charged for the commodities and services sold have been kept down to a minimum. In the 1935 budget, the government, for instance, estimated a surplus from the state utility system of approximately \$5,000,000 for the year; from the telegraph and telephone systems, of \$8,000,000; from the state railways, of \$6,000,000 and from the Royal Board of Forestry of \$3,000,000. Graft in Sweden among these public enterprises is virtually unknown.

The Swedish programs in behalf of liquor control, the farmer and the unemployed come in for enlightened discussion. Sweden emerged

from the depression before almost every other nation. As early as November, 1934, her industrial production had risen to 104, as compared with an index of 100 in 1929. In August, 1935, the unemployed totaled only about 43,000, considerably less than 1 per cent of the entire population.

The author readily admits that increased purchases of forest products by Great Britain after discontinuing purchases from Russia and enlarged sales of munitions to Germany and other countries helped in this recovery. However, during the depression mass purchasing power was definitely sustained by the widespread cooperative movement, state ownership of many industries, a carefully considered public works and unemployment relief system, a vigorous trade union movement, a liberal tariff policy, and a system of monetary stabilization. These forces operated powerfully to reduce unemployment to a minimum.

While the "Swedes seem to have interrupted the process of self-destruction which marked the economic life of other industrialized countries," through the encroachments made on the capitalist system by organized consumers and producers and a state subjected increasingly to labor control, they have not solved the question of inequality, of economic security, of democracy or of peace. The author clearly brings out the resistance of the ruling class to drastic proposals for social change, the power in the nation of such capitalist families as the Wallenbergs, and the dependence of Sweden on the rest of Europe for economic prosperity and peace. Because of the general domestic and world situation, Mr. Childs feels that Sweden may yet be "degraded or destroyed in the general conflagration." It has, however, traveled a considerable distance along the road to a new social order and, on the basis of its mass labor movements on the economic and political fields, may well demonstrate to the world a new way out of our industrial insecurity. That way out, however, will never be found under a modified capitalism. It can only be found under a socialized order. Mr. Childs' volume thus shows conclusively two things: First, that to the extent that the sphere of private profit-making business is limited by mass pressure, to that extent the welfare of the masses is enhanced; secondly, that a mere reduction of the sphere of profit-making business does not meet the grave

issues which capitalism presents. The profit system itself must be abolished as a means to social salvation.

While the author refers incidentally in many pages to the existence of the Social Democratic party, now in control of the government, he tells the reader but little about the degree to which the increased welfare of the people of Sweden has been due to the direct and indirect efforts of that party. At a time when American labor is beginning to awaken politically as well as industrially, a careful appraisal of the role played in the national life of Sweden by that country's Socialist and labor movement on the political field would have constituted a highly valuable contribution. As it stands, Mr. Childs' fascinating and thoughtful volume is one that every student of the social problem in this country should read.

HARRY W. LAIDLER

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AMERICAN SOCIALISM—ITS AIMS AND PRACTICAL PROGRAM. By Harry W. Laidler, *New York. Harper 1937*, 330 pages. Cloth edition, \$2.50. *Paper edition, purchased from the League for Industrial Democracy.* To members of the L.I.D., \$1.25; to non-members, \$1.50.

In 1935, the first edition of this book written by the Executive Director of the League for Industrial Democracy was published under the title, "Socializing Our Democracy" (\$3.00). In this volume was contained a clear statement of the forces making for disintegration in the capitalist system of the United States; a description of the New Deal and of various proposals—pseudo and genuine in their nature—in behalf of social planning; an analysis of the trends in the direction of peaceful, and of a more violent change in the economic order, and an outline of a cooperative social order for America. The latter section covered almost two-thirds of the volume and included chapters on public ownership, voluntary cooperation, democracy in government, incentives and a socialized society, making industry pay under socialism and chapters on security, health, recreation art, the family and the political structure under a cooperative social order.

The *New York Times* characterized the book as "a brilliant and

provocative study" and Norman Thomas declared it a volume "in the very forefront" of books on social change.

This book has just been reissued by the publishers under the title, "American Socialism." In the second edition, the author presents a new Foreword, in which he portrays some of the most recent developments in the Socialist movement both here and abroad.

For the benefit of members and friends of the League for Industrial Democracy, Harper Brothers has published a special paper edition which will be sold to members of the League at \$1.25 a volume and to non-members at \$1.50. The volume should be widely used in connection with discussion and study groups in the progressive, Socialist and labor movement.